



## Shorter communication

## Perceived burdensomeness and suicide ideation in adult outpatients receiving exposure therapy for anxiety disorders

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## ARTICLE INFO

## Article history:

Received 15 April 2016

Received in revised form

27 June 2016

Accepted 26 July 2016

Available online 29 July 2016

## Keywords:

Suicide ideation

Interpersonal-psychological theory of suicide

Perceived burdensomeness

Exposure therapy

Anxiety disorders

## ABSTRACT

Perceived burdensomeness is considered a proximal risk factor for suicide ideation. However, there is a lack of prospective studies. Furthermore, it is unclear in as much psychotherapy for anxiety disorders is associated with a decrease in suicide ideation. A total of 105 adult outpatients suffering from panic disorder, agoraphobia, or specific phobia received manualized exposure-therapy. Perceived burdensomeness was considered as predictor of suicide ideation concurrently, after the fourth and the tenth therapy session and posttreatment – controlling for baseline symptom distress, suicide ideation, number of therapy sessions and age. Furthermore, pre- to post-changes in suicide ideation and perceived burdensomeness were assessed. Perceived burdensomeness emerged as a significant predictor of suicidal ideation concurrently and after the fourth and the tenth therapy session, but not at the end of therapy. Treatment had no effect on suicide ideation and only a marginal effect on perceptions of burdensomeness. In conclusion, the current study highlights the importance of perceptions of burdensomeness in understanding suicide ideation.

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## 1. Introduction

Suicide ideation is highly prevalent in clinical samples (18–32%; Bernal et al., 2007) and has been identified as a predictor for death by suicide (Brown, Steer, Henriques, & Beck, 2005). Suicide ideation is especially common in affective disorders and schizophrenia (Joiner, Van Orden, Witte, & Rudd, 2009), but also in anxiety disorders (Kanwar et al., 2013). In a European community study 23.7% of patients suffering from panic disorder with/without agoraphobia and 18.3% of patients suffering from specific phobia reported lifetime suicide ideation (Bernal et al., 2007). In studies on treatment-seeking patients suffering from panic disorder, 31% reported having had suicidal thoughts in the past year (Cox, Dorenfeld, Swinson, & Norton, 1994) and 25% in the past week (Fleet et al., 1996). In line, converging empirical evidence suggests that anxiety and its disorders functions as statistically significant risk factors for

suicidal thoughts and behaviors (Bentley et al., 2016). The growing body of research linking anxiety disorders with suicide ideation and the fact that anxiety disorders can be very successfully treated (Mitte, 2005; Ruhmland & Margraf, 2001; Sanchez-Meca, Rosa-Alcazar, Marin-Martinez & Gomez-Conesa, 2010), suggest that anxiety, - in the form of panic and phobic fear - may constitute a modifiable risk factor for suicide ideation. Yet, by now, it is unclear to what extent psychotherapy for anxiety disorders is associated with a decrease in suicide ideation. Although it seems plausible to assume that psychological treatments do not only reduce negative affect but also suicidal ideation, this assumption has lately been called into question by a meta-analysis conducted by Cuijpers et al. (2013) who found only very small and non-significant effects of psychotherapy for depression on suicidality. Therefore, one purpose of the present study was to examine change in suicide ideation in patients undergoing exposure therapy for panic disorder, agoraphobia and specific phobias.

Furthermore, factors associated with suicide ideation in anxiety disorders are relatively understudied. According to the *Interpersonal Theory of Suicide* (Joiner, 2005), the view that one's existence burdens family and friends must be present in order for someone to

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desire suicide. Perceived burdensomeness is understood as a generic, proximal and causal risk factor for suicide ideation. In fact, there is already ample evidence that perceived burdensomeness is associated with suicide ideation (for reviews see Hill & Pettit, 2014; Ma, Batterham, Calear, & Han, 2016). This association has been observed in different samples (e.g., students, soldiers, outpatients), using different assessment strategies and under statistical control of various concurrent risk factors (e.g., age, depression). Yet, a key limitation of most existing studies on perceived burdensomeness is their cross-sectional design. This limitation precludes establishing a temporal relationship between perceived burdensomeness and suicide ideation. To our knowledge, there are only two prospective studies showing that perceived burdensomeness precedes elevations of suicidal ideation in undergraduates (Kleiman, Liu, & Riskind, 2014; Van Orden, Cukrowicz, Witte & Joiner, 2012). Yet, in both studies non-clinical samples were investigated, studied time interval was rather short (<2 month), and the contribution of symptom severity was not controlled for.

Accordingly, another purpose of the present prospective study was to evaluate the association between perceived burdensomeness and suicide ideation in a sample of outpatients suffering from panic disorder, agoraphobia or specific phobia at early, mid- and late treatment, while controlling for age, symptom severity, number of sessions attended, and baseline suicide ideation.

## 2. Method

### 2.1. Procedure

The current study is a secondary analysis of an ongoing study on genetic factors in exposure treatments for anxiety disorders. Treatments included in the current analysis were conducted between December 2011 and October 2015. All participants were recruited at an outpatient clinic in the Ruhr region in Germany. They were offered participation if they met the following criteria: (a) DSM-IV (APA, 1994) criteria for Panic Disorder with Agoraphobia, Agoraphobia without a history of Panic Disorder, Specific Phobia; (b) the anxiety disorder was considered to be the most severe disorder if co-morbid disorders were present; (c) 18–65 years of age; (d) not meeting DSM-IV criteria for psychosis, mania, current substance abuse/dependency; (e) no concurrent psychological or psychopharmacological treatment; (f) no suicide ideation/behavior in need of immediate treatment. Diagnoses were made by trained clinical psychologists using the Diagnostisches Interview bei psychischen Störungen (DIPS), a structured clinical interview with well-established reliability, validity, and patient acceptance (Schneider & Margraf, 2011). Prior to treatment, participants gave written and informed consent. The study was approved by the Ethics Committee of the Faculty of Psychology at the Ruhr-Universität Bochum.

### 2.2. Participants

One hundred and five participants (69.5%) completed the treatment, i.e., received a maximum of 30 sessions without violations of the inclusion criteria. Forty-six participants (30.5%) dropped-out of the treatment: Twenty-one participants (45.7%) gave no reason for dropping out, eleven participants (23.9%) suffered from an exacerbation of a comorbid disorder in need of immediate treatment, five participants (10.9%) started a pharmacological treatment, three participants (6.5%) began to suffer from a serious somatic disease, three participants (6.5%) started inpatient treatment, two participants (4.3%) found exposure therapy too exhausting and one participant (2.2%) stopped treatment because of pregnancy. Treatment completers and non-

completers did not significantly differ in age, gender, or pretreatment suicide ideation. However, non-completers had higher pretreatment symptom severity scores,  $t(148) = -2.13$ ,  $p < 0.05$ , and pretreatment perceived burdensomeness scores,  $t(148) = -2.33$ ,  $p < 0.05$ .

For completers, age at baseline ranged from 19 to 65 years ( $M = 37.4$  years,  $SD = 12.7$ ), and 66.7% ( $n = 70$ ) of the sample were female. About 51% percent ( $n = 54$ ) were not married, 40% were married ( $n = 42$ ) and 9% were separated/divorced ( $n = 9$ ). About seventy-five percent were working either as employees or freelancers ( $n = 79$ ), 16% were students ( $n = 17$ ), 7% were unemployed ( $n = 7$ ) and 2% were retired ( $n = 2$ ). Fifty-nine (56.2%) patients suffered from panic disorder with agoraphobia, four (3.8%) from agoraphobia without history of panic disorder and 42 (40%) from specific phobia, predominantly of the animal (11.4%) and environmental (13.3%) subtype. All participants were Caucasian.

### 2.3. Treatment

Participants received exposure-based treatment delivered according to a treatment manual (Teismann, Margraf, & Schneider, 2011) and in individual sessions with a maximum of 30 sessions. For completers, the mean number of sessions attended was  $M = 17.1$  ( $SD = 5.9$ ; Range: 4–30). Treatment included psychoeducation on the nature of anxiety as well as interoceptive and situational exposure exercises. In case of acute suicide ideation, behavior therapists were advised to adhere to an accompanying manual on managing suicidality (Teismann & Dorrman, 2014). This manual describes principles and procedures for the assessment of suicidal ideation or behavior and for crisis intervention with suicidal adults. All treatments were regularly supervised by experienced senior clinicians using audio-visual recordings in order to ensure treatment protocol integrity.

### 2.4. Therapists

Therapies were provided by 18 therapists (15 women, 83.3%). All therapists were psychologists with a CBT orientation and had  $M = 3.57$  years ( $SD = 1.47$ ; Range: 1–5 years) of experience in conducting CBT. All therapists were Caucasian and trained in conducting exposure-based CBT for panic disorder, agoraphobia and specific phobia prior to participating in the active phase of treatment.

### 2.5. Measures

#### 2.5.1. Depressive Symptom Inventory–Suicidality Subscale (DSI-SS)

The DSI-SS (Joiner, Pfaff, & Acres, 2002; German version: Von Glischinski, Teismann, Prinz, Genauer & Hirschfeld, 2016) is a four-item scale designed to measure the intensity of suicidal ideation symptoms over the past two weeks. Scores on each item range from 0 (e.g., “I do not have thoughts of killing myself”) to 3 (e.g., “I always have thoughts of killing myself”). The German version of the scale has been shown to possess good psychometric properties (Von Glischinski et al, 2016). The internal consistency for the DSISS in the current sample was  $\alpha = 0.81$ .

#### 2.5.2. Perceived Burdensomeness Subscale of Interpersonal Needs Questionnaire (INQ-PB)

The INQ (Van Orden, Witte, Cukrowicz, & Joiner, 2012; German version: Glaesmer, Spangenberg, Scherer, & Forkmann, 2014) assesses the amount of perceived burdensomeness with six items (e.g., “These days I feel like a burden on the people in my life”). All items are to be answered on a 7-point Likert scale ranging from “1” (not at all true for me) to “7” (very true for me). The German version

**Table 1**  
Descriptive and change statistics.

Variable	Pre <i>M</i> ( <i>SD</i> )	Session 4 <i>M</i> ( <i>SD</i> )	Session 10 <i>M</i> ( <i>SD</i> )	Post <i>M</i> ( <i>SD</i> )	<i>T</i> ( <i>pre-post</i> )	<i>d</i> ( <i>pre-post</i> )
DSISS	0.39 (0.94)	0.35 (0.97)	0.34 (0.87)	0.28 (0.78)	1.46	0.13 (–0.014–0.40)
INQ-PB	9.38 (6.25)	–	–	8.07 (5.20)	2.51*	0.23 (–0.04–0.50)
DASS	30.61 (24.54)	–	–	18.27 (16.93)	5.94***	0.58 (0.31–0.86)

Note. DSISS: Depressive Symptom Inventory, Suicidality Subscale; DASS: Depression, Anxiety and Stress Scales.

INQ-PB: Perceived Burdensomeness Subscale of the Interpersonal Needs Questionnaire.

\*\*\**p* < 0.001, \*\**p* < 0.01, \**p* < 0.05.

of the INQ shows good psychometric properties (Hallensleben, Spangenberg, Kapusta, Forkmann, & Glaesmer, 2016). Accordingly, internal consistency was very good in the current study:  $\alpha = 0.93$ .

### 2.5.3. Depression Anxiety Stress Scales (DASS)

The DASS (Lovibond & Lovibond, 1995; German version: Nilges & Essau, 2015) is a 21-item questionnaire measuring depressive mood, anxiety, and chronic tension/stress during the past week (“I couldn’t seem to experience any positive feeling at all.”). All items are rated on a 4-point (0–3) scale. The German version of the DASS has been shown to possess good psychometric properties (Nilges & Essau, 2015). Internal consistency of the total score was  $\alpha = 0.94$  in the current sample.

### 2.6. Design and analyses

All measures were administered prior (pre-treatment) and after (post-treatment) treatment. In addition, suicide ideation was assessed after the fourth and tenth treatment session. Data was complete for all variables except for suicide ideation after session 10 (2.9% missing). Thus, no data imputation was conducted since this very small percentage of missing data was not considered to affect outcome (Hardt, Herke, Brian, & Laubach, 2013). An analysis of variance for repeated measures was conducted with suicide ideation as dependent variable and “time” as within subject factor. Moreover, changes in symptom severity and perceived

burdensomeness were analyzed using *t*-tests for dependent samples and effect sizes *d* (Cohen, 1988). In order to reduce sampling error, effect sizes have been corrected using a factor provided by Hedges and Olkin (1985). Lastly, a series of multivariate linear regression analyses was conducted. Age, number of completed therapy sessions, symptom distress, suicide ideation, and perceived burdensomeness at baseline were entered as independent variables predicting suicide ideation as criterion variable at baseline, after session four, after session ten, and post-treatment.

## 3. Results

### 3.1. Baseline and change characteristics

Descriptive statistics for all study variables are presented in Table 1. Nearly a quarter of the sample (21%; *n* = 22) reported some level of suicide ideation (i.e., scores greater than 0 on the DSISS) at the pre-treatment assessment and 15.2% (*n* = 16) at the post-treatment assessment. No participant attempted or committed suicide during the trial.

The analysis of variance for repeated measures revealed that suicide ideation did not differ significantly across the four different time points ( $F(3, 99) = 0.464$ , *p* = 0.708,  $\eta^2 = 0.014$ ). *t*-tests for dependent samples revealed that symptom distress and perceived burdensomeness declined significantly from pre- to post-treatment (see Table 1). Yet, it has to be noted that only change in symptom distress showed a medium effect size, while effect sizes for

**Table 2**

Results of multivariate linear regression analyses predicting suicide ideation at baseline, after session four, session ten, and post-treatment.

Criterion	Predictor	Stand. $\beta$	<i>t</i>	<i>p</i>	Model		
					Adj. <i>R</i> <sup>2</sup>	<i>F</i>	<i>p</i>
DSISS-pre	Constant	–	–0.552	0.582	0.142	5.293	<0.001
	Age	0.001	0.009	0.993			
	Number of sessions	–0.015	–0.159	0.874			
	DASS	0.173	1.629	0.107			
	INQ-PB	0.309	2.890	0.005			
DSISS-session 4	Constant	–	–2.842	0.005	0.521	23.604	<0.001
	Age	0.191	2.628	0.010			
	Number of sessions	0.007	0.093	0.926			
	DSISS-pre	0.619	8.286	0.000			
	DASS	0.062	0.769	0.443			
DSISS-session 10	INQ-PB	0.200	2.397	0.018	0.561	26.827	<0.001
	Constant	–	–1.434	0.155			
	Age	–0.009	–0.130	0.897			
	Number of sessions	0.073	1.037	0.302			
	DSISS-pre	0.588	8.030	0.000			
DSISS-post	DASS	–0.028	–0.357	0.722	0.323	10.914	<0.000
	INQ-PB	0.292	3.531	0.001			
	Constant	–	0.960	0.339			
	Age	–0.038	–0.434	0.665			
	Number of sessions	0.017	0.197	0.844			
DSISS-pre	DSISS-pre	0.620	6.976	0.000	0.323	10.914	<0.000
	DASS	0.073	0.761	0.448			
	INQ-PB	–0.184	–1.856	0.066			
	INQ-PB	–0.184	–1.856	0.066			

Note: DSISS: Depressive Symptom Inventory, Suicidality Subscale; DASS: Depression, Anxiety and Stress Scale; INQ-PB: Perceived Burdensomeness Subscale of the Interpersonal Needs Questionnaire.

perceived burdensomeness and suicide ideation were negligible.

### 3.2. Predicting suicide ideation from perceived burdensomeness

Table 2 shows results of the series of multivariate linear regression analyses with suicide ideation at the different assessment points as criterion variables. Perceived burdensomeness at baseline significantly – and incrementally to age and symptom distress – predicted suicide ideation at baseline. Moreover, it significantly predicted suicide ideation after sessions four and ten, when controlling for suicide ideation at baseline. However, it was not a significant predictor of post treatment suicide ideation.

## 4. Discussion

The aim of the present study was to examine the relationship between perceived burdensomeness and suicide ideation in a prospective study design using a clinical sample. There were two main findings: (1) Perceived burdensomeness is a significant predictor of suicidal ideation concurrently and after the fourth and the tenth therapy session, but not at the end of therapy. (2) Treatment had no effect on suicide ideation and only a marginal effect on perceptions of burdensomeness.

This study provides strong support for the Interpersonal Theory of Suicide (Joiner, 2005), which postulates that perception of burdensomeness is a key psychological mechanism promoting suicide ideation. In addition to previous research, showing an association between perceived burdensomeness and suicide ideation (Hill & Pettit, 2014), this is the first study to demonstrate that perceived burdensomeness prospectively predicts suicide ideation – controlling for symptom distress, age, and baseline suicide ideation – in a clinical sample. Therefore, the current results underscore the assumption that perceived burdensomeness is an antecedent, instead of a correlate or consequence of suicide ideation. The study furthermore highlights the proposed proximal nature of perceived burdensomeness as a risk factor for suicide ideation (Joiner, 2005) by demonstrating a predictive effect concurrently, as well as after the fourth and the tenth session, but not after treatment termination. Clinically, these data suggest that it could be useful to incorporate perceived burdensomeness into the psychosocial risk assessment of persons contemplating suicide.

The rate of anxiety patients reporting current suicide ideation was nearly identical to previous studies showing that about 25% panic patients report suffering from suicidal thoughts within the past week (Fleet et al., 1996). Furthermore, as has been shown in the treatment of depression (Cuijpers et al., 2013), exposure-treatment for anxiety disorders had no effect on suicide ideation. Recent research suggests that suicidal thoughts and behavior are not merely an epiphenomenon of symptom distress but represent a separate nosological entity (e.g. Forkmann, Gauggel, Spangenberg, Brahler, & Glaesmer, 2013), in need of specific therapeutic strategies. Therefore, the current data complement previous findings showing that treatment is effective when directly focused on reducing suicide ideation but not when focusing on other symptoms (such as anxiety) with the aim of reducing suicide ideation as a secondary effect (Tarrier, Taylor, & Gooding, 2008).

One of the major strengths of the present study lies in its prospective design. Nonetheless, as there was no control group incorporated, it is unclear, whether changes in study variables are due to treatment or the passage of time. However, the small and non-significant findings of the current study impede an over-estimation of treatment effects.

To conclude, the current study highlights the importance of

perceptions of burdensomeness in understanding suicide ideation. Furthermore, it underscores previous findings showing that suicide ideation is functionally independent from symptom distress.

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